

that, in FIG. 9 of Hartmann, a second filter 58 filters "light" output from a first filter 56.

However, it is respectfully submitted that filters 56 and 58 in Hartmann are both "electrical" filters, and not "optical" filters. More specifically, it is respectfully submitted that filters 56 and 58 in FIG. 9 of Hartmann are electrical filters which filter electric, radio-frequency (RF) signals. Filters 56 and 58 are NOT optical filters filtering light.

FIG. 1 and column 4, lines 18-29, of Hartmann, show the basic structure of the filters in Hartmann. See also column 3, lines 23-25, of Hartmann. As disclosed in column 4, lines 24-26, of Hartmann, an input signal is applied to lines 18 and 20 by means of "conductor" bars 22 and 24. Here, the term "conductor" implies that bars 18 and 20 are made of a conducting material so that electrical RF signals can travel through the bars.

Further, column 1, line 39, through column 2, line 2, of Hartmann, clearly indicate that the filters of Hartmann are for use in filtering electric signals, such as RF signals. For example, column 1, lines 53-67, clearly indicate that the filters of Hartmann might be used, for example, as an RF tuning filter.

Additionally, it is respectfully submitted that a review of the overall Hartmann reference makes it clear that Hartmann relates to "electrical" filters, and not "optical" filters.

Therefore, it is respectfully submitted that, in the first paragraph under item 3 on page 2 of the Office Action, the Examiner incorrectly asserts that the second filter 58 filters "light" output from the first filter 56.

In fact, on page 3, lines 2-3 of the Office Action, the Examiner acknowledges that Hartmann fails to specifically teach that the filters are optical filters. However, the Examiner asserts that it would be obvious to use optical filters for the filters in Hartmann.

More specifically, on page 3, lines 3-12 of the Office Action, the Examiner asserts:

Hartmann suggests that the filters used in the system are optical filters in that he teaches that the filters are used to pass particular wavelengths (abstract) and that the invention is based on Rayleigh waves, an optical phenomena. Although Hartmann does not specifically teach that the filters are optical filters, one skilled in the art would clearly have recognized that AOTF filters, which are readily available and function according to the same principles as the filters taught by Hartmann, could have been used, thereby

allowing the system of Hartmann to be used for optical systems. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have used optical filters as the filters of Hartmann.

Therefore, the underlying assumptions of the Examiner in extending the electrical filters of Hartmann to the optical filters of the present invention are that "the filters (in Hartmann) are used to pass particular wavelengths", and that the invention of Hartmann "is based on Rayleigh waves, an optical phenomena". It is respectfully submitted that these underlying assumptions are not sufficient to extend the electrical filters of Hartmann to the optical filters of the present invention.

For example, it is true that Hartmann indicates that the electrical filters can be used to pass particular wavelengths. This is because the electrical RF signals in Hartmann are sinusoidal in nature, and thereby have particular wavelengths. See, for example, FIGS. 3 and 4, and the disclosure in column 6, line 35, through column 7, line 19, of Hartmann, showing the periodic nature of the filter arrangement to create a passband around a specific center wavelength. Therefore, it should be understood that electrical RF signals can be at specific wavelengths, and the filters of Hartmann are electrical filters designed to pass electrical RF signals at specific wavelengths. However, there is no indication in Hartmann that the invention of Hartmann can be applied to optical filters. Accordingly, although Hartmann indicates that the filters of Hartmann can pass electrical RF signals at specific "wavelengths", it is respectfully submitted that such disclosure is insufficient to extend the invention of Hartmann to optical filters.

Moreover, it is true that the invention of Hartmann relates to Rayleigh waves. See, for example, column 1, lines 20-32, of Hartmann. Therefore, as indicated above, the Examiner extends the invention of Hartmann to optical filters since Rayleigh waves are an "optical phenomena". However, it is respectfully submitted that Rayleigh waves are not limited to being an optical phenomena, and instead are more widely considered as broadly applicable as non-optical phenomena. For example, column 1, lines 30-32, of Hartmann, simply indicate that a Rayleigh wave "is a purely surface wave traveling parallel to a stress-free, plane boundary of an infinite, isotropic, elastic solid". Therefore, it is respectfully submitted that Rayleigh waves are not limited to the area of "optics". In fact, it is respectfully submitted that Hartmann is related to

Rayleigh waves in the context of filtering *electrical, RF signals*. Accordingly, although Hartmann indicates that the invention of Hartmann relates to Rayleigh waves, it is respectfully submitted that such disclosure is insufficient to extend the invention of Hartmann to optical filters.

Moreover, the Examiner notes that AOTF filters are known and readily available and so, according to the Examiner, it would be obvious to use AOTF filters as the filters in Hartmann. However, as indicated above, Hartmann relates to electrical filters, but AOTF filters are optical filters. Moreover, column 1, line 43, through column 2, line 2, of Hartmann, disclose many possible uses for the invention of Hartmann. More specifically, this portion of Hartmann indicates that the invention can be used as a local oscillator of a multi-channel receiver, as an RF tuning filter, as a tunable band pass filter for a tuned radio frequency receiver in which no IF (intermediate frequency) section is required, or as a frequency synthesizer. It is respectfully submitted that such applications are all related to filtering RF (radio frequency) signals, which are electrical, not optical, signals. Therefore, since no portion of Hartmann discloses or suggest a potential use of the invention of Hartmann where optical signals would be filtered, it is respectfully submitted that it would be improper to extend the invention of Hartmann to an AOTF.

Further, the filter structures shown in Hartmann are significantly different than the structure of an AOTF. For example, FIG. 1 of Hartman shows a filter comprised of six taps. By contrast, FIG. 2 of the present application shows the configuration of a typical AOTF. As can be seen from comparing these figures, an AOTF is a completely different structure, and operates on completely different principles, than the tap filter of Hartmann. Therefore, it is respectfully submitted that it would be improper to extend the invention of Hartmann to an AOTF.

In addition, since the possible uses in Hartmann all relate to electrical applications, and do not indicate any "optical" examples, it can be argued that the invention of Hartmann teaches away from the application of Hartmann to optical filters, such as to AOTFs.

Accordingly, it is respectfully submitted that the use of electrical filters to filter electrical RF signals is significantly different than the use of optical filters to filter light. Therefore, it is respectfully submitted that Hartmann is non-analogous art to the present invention and, in any event, does not disclose or suggest the present invention.

In view of the above, it is respectfully submitted that the rejection is overcome.

III. REJECTION OF CLAIMS 16, 17, 23, 24, 60, 61 AND 69-70 UNDER 35 USC 103 AS BEING UNPATENTABLE OVER HARTMANN IN VIEW OF TADA (USP 5,994,980)

The comments in Section II, above, for distinguishing over Hartmann, also apply here, where appropriate. To summarize, it is respectfully submitted that Hartmann relates to "electrical" filters and not "optical" filters, and is thereby non-analogous art to the present invention.

Tada is similar to Hartmann, in that Tada relates to "electrical" filters, not "optical" filters.

For example, as indicated in column 6, lines 46-49, of Tada, an "RF signal" is input to the filter. An RF signal is an electrical signal, not an optical signal. Column 6, line 1, through column 7, line 18, describe the operation of the filter in Tada, and indicate that the filter is an "electrical" filter, not an "optical" filter. See also column 1, lines 20-23, of Toda, indicated that the filter of Toda relates to the filtering of RF signals.

Additionally, it is respectfully submitted that a review of the overall Toda reference makes it clear that Toda relates to "electrical" filters, and not "optical" filters.

It is respectfully submitted that the use of electrical filters to filter electric signals is significantly different than the use of optical filters to filter light. Therefore, it is respectfully submitted that Toda is non-analogous art to the present invention.

In accordance with the above, it is respectfully submitted that Hartmann and Toda should not be combined to reject the claimed invention.

In view of the above, it is respectfully submitted that the rejection is overcome.

IV. REJECTION OF CLAIMS 25-32, 71-73, 74-77 AND 81-85 UNDER 35 USC 103 AS BEING UNPATENTABLE OVER HARTMANN IN VIEW OF O'DONNEL (WO/97/10658)

The comments in Sections II and III, above, for distinguishing over Hartmann and Tada, also apply here, where appropriate. To summarize, it is respectfully submitted that Hartmann and Toda relate to "electrical" filters and not "optical" filters, and are thereby non-analogous art to the present invention.

FIGS. 4 and 5 of O'Donnell show two different optical filters connected together. Oscillators 33, 34 and 40 are used to provide RF control signals for controlling the optical filters.

However, O'Donnell does not disclose the relationships of the RF control signals of the various oscillators.

Moreover, O'Donnell should not be combined with Hartmann, since Hartmann relates to "electrical" filters, whereas O'Donnell relates to "optical" filters. Therefore, Hartmann and O'Donnell are non-analogous art.

In view of the above, it is respectfully submitted that the rejection is overcome.

V. REJECTION OF CLAIMS 33-34 UNDER 35 USC 103 AS BEING UNPATENTABLE
OVER HARTMANN IN VIEW OF O'DONNEL AND TADA

The comments in Sections II, III and IV, above, for distinguishing over Hartmann, O'Donnell and Tada, also apply here, where appropriate. To summarize, it is respectfully submitted that Hartmann and Tada relate to "electrical" filters and not "optical" filters, and are thereby non-analogous art to the present invention.

FIGS. 4 and 5 of O'Donnell show two different optical filters connected together. Oscillators 33, 34 and 40 are used to provide RF control signals for controlling the optical filters.

However, O'Donnell does not disclose the relationships of the RF control signals of the various oscillators.

Further, the Examiner combines the reflector of Hartmann and Tada with O'Donnell.

However, O'Donnell should not be combined with either Hartmann or Tada, since Hartmann and Tada relate to "electrical" filters, whereas O'Donnell relates to "optical" filters. Therefore, Hartmann and Tada are non-analogous art to O'Donnell.

In view of the above, it is respectfully submitted that the rejection is overcome.

VI. CONCLUSION

In view of the above, it is respectfully submitted that the application is in condition for allowance, and a Notice of Allowance is earnestly solicited.

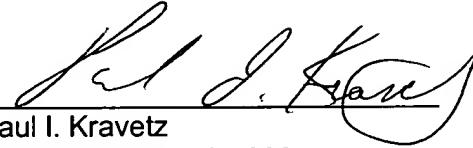
If any further fees are required in connection with the filing of this response, please charge such fees to our Deposit Account No. 19-3935.

Respectfully submitted,

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